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PLANT IMMIGRANTS

Descriptive notes furnished mainly by Agricultural Explorers and Foreign Correspondents relative to the more important introduced plants which have arrived during the month at the Office of Foreign Seed and Plant Introduction of the Bureau of Plant Industry of the Department of Agriculture. These descriptions are revised and published later in the Inventory of Plants Imported.

No. 110. **June 1915.**

Genera Represented in this Number.

Acrocomia	40881	Dioscorea	40892
Annona	40835	Durio	40826
Bambos	40886	Passiflora	40843
Canarium	40827		40852
Cephalostachyum	40887		40837
Citrus	40824	Phyllostachys	40842
	40893		40851
Clematis	40844	Primula	40857
Cracca	40894-895	Pyrus	40865-871
Dendrocalamus	40888	Ziziphus	40853
	40889		40877-878

Plates:

A Cashew Tree in an Orange Orchard in Bahia, Brazil.
A Field of Ginger in Shantung Province, China.

Applications for material listed in these multigraphed sheets may be made at any time to this Office. As they are received they are placed on file, and when the material is ready for the use of experimenters it is sent to those on the list of applicants who can show that they are prepared to care for it, as well as to others selected because of their special fitness to experiment with the particular plants imported. Do not wait for the Autumn Catalogue.

One of the main objects of the Office of Foreign Seed and Plant Introduction is to secure material for plant experimenters, and it will undertake as far as possible to fill any specific requests for foreign seeds or plants from plant breeders and others interested.

Permission to publish on application only.

Acrocomia fusiformis (Swartz) Sweet. (Phoenicaceae.) 40881. Seeds of a palm from Santiago de las Vegas, Cuba. Presented by Mr. Juan T. Roig, Botanist, Cuban Agricultural Experiment Station. "*Macaw tree* of Jamaica, *Corozo de Jamaica* of Cuba. Trunk ten to thirty feet high, fusiform or swollen above the middle, armed with spines in rings. Leaves pinnate, petioles and rachis densely armed. Inflorescence enclosed in two spathes, inner complete, sparingly armed. Peduncles also armed with long black spines. Fruit depressed-globose, about one inch in diameter, smooth. Seed very hard, one-celled, foramina lateral. A remarkably strong fiber called *pita de corozo* is extracted from the rachis of the leaves of this palm, and is used in Cuba in the manufacture of brushes. This Palm has been erroneously referred to as *Acrocomia lasiospatha* by Martius and Grisebach." (C. P. Doyle.)

Annona scleroderma Safford. (Annonaceae.) 40835. Seeds of the "pox-té" from Cajabon, Guatemala. Presented by Mr. W. E. Curley at the request of Mr. O. F. Cook. Mr. Cook in his field-notes made the following entry: "The fruit called by the Kekchi Indians of Alta Verapaz *box-te* or *bosh-te*, is curious rather than beautiful. The shell is divided into angular depressed areoles by raised ridges. When mature the ridges are dark brown and the areoles between them green. The pulp is readily separable into slender pyramids. These are normally one-seeded, but in many cases they are seedless. The texture of the pulp is perfect, the flavor aromatic and delicious, with no unpleasant aftertaste. It is much richer than the soursop, with a suggestion of the flavor of the *zapote blanco*, or *matasano* (*Casimiroa edulis*), but not in the least objectionable. It can be eaten most conveniently with a spoon. The most fragrant pulp is close to the rind. The seeds separate from the surrounding pulp more readily than in most annona fruits."

Bambos tulda Roxb. (Poaceae.) 40886. Seeds of a bamboo from Calcutta, India. Presented by Mr. William Bembower, Collins, Ohio. "The common bamboo of Bengal, where it grows in great abundance everywhere, flowering in May. Not uncommon in the deciduous forests of Pegu, generally occupying lower and moister stretches of ground in company with *tinwa*, *Cephalostachyum pergracile*, the surrounding dry hills being covered with *Dendrocalamus strictus*." (Brandis.) "An evergreen or deciduous, caespitose, arboreous, gregarious bamboo. Culm green or glabrous when young, grey-green when older, sometimes streaked with yellow, 20 to 70

feet high, not or little branched below, 2-4 inches in diameter; nodes not swollen, the lower ones fibrous-rooted; internodes one to two feet long, white-scurfy when very young, ringed with white below the nodes, the walls thin, three to five-tenths inch; branches many from nearly all the nodes, those of the lowest ones thin, nearly leafless, horizontal."(J. S. Gamble, Bambuseae of British India, in Annals of the Calcutta Botanic Garden, vol. 7, p. 30.) The culms of this bamboo supply the well-known Calcutta cane, in such great demand for fish-rod-making, and at present almost unobtainable. Plants introduced in 1907 have produced canes 70 feet in height at Mayaguez, Porto Rico. This bamboo should be tried for windbreaks in Porto Rico, and may succeed in frost-free parts of Florida where great depth of soil is to be had. (S. C. Stuntz.) Both of the species mentioned above are described in this number of Plant Immigrants.

Canarium commune L.(Burseraceae.) 40827. Seeds from the Botanic Garden, Buitenzorg, Java. "A large handsome Malayan tree, characterized by a remarkable buttressed trunk and laterally compressed aerial basal roots; the latter develop enormous erect flanges of uniform thickness, so that solid circular pieces may occasionally be cut out from them to form ready-made cart wheels. The tree is much cultivated for shade or ornament in Java. It bears in great abundance large pendant clusters of dark-purple fruits, which are of the size of small plums; these are produced all the year around, but chiefly in June. The kernel of the fruit is edible, being similar in flavor to sweet almonds; it yields, by expression, an oil used for burning in lamps and for cooking purposes. A desirable tree for planting in avenues, etc. It thrives in hot and moist districts up to about 1500 feet elevation, and prefers deep, well-drained soil. Propagated by seed, which may be sown in nursery beds, and kept moist and shaded until germinated."(Macmillan, Handbook of Tropical Gardening and Planting.)

Cephalostachyum pergracile Munro.(Poaceae.) 40887. Seeds of a bamboo from Calcutta, India. Presented by Mr. William Bembower, Collins, Ohio. "A deciduous, arboreous, tufted bamboo, with glaucous-green culms 30 to 40 feet high, two to three inches in diameter, and rather thin walled, the walls usually about one-half inch thick. It is one of the chief bamboos of Burma and one of those most frequently found in association with teak. This beautiful species

is probably the most common of all Burmese bamboos except *Dendrocalamus strictus*, and, as I am informed by J. W. Oliver, it may be found almost any year flowering sporadically like *D. strictus* and *D. hamiltonii*, but not generally producing good seed on such occasions. The Kolhan and Assam localities would point to its having a wider range than is generally supposed. The culms are largely used for building and mat-making and other purposes, and in Burma the joints are used for boiling *kauknyin* or glutinous rice, the effect being to make a long mould of boiled rice which can be carried about to be eaten on journeys. It is at once recognized by the characteristic inflorescences, the short sheaths with rounded, long-fringed auricles, and long bifidly-mucronate palea." (J. S. Gamble, Bambuseae of British India, Annals Calcutta Botanic Garden, vol. 7, p. 109.)

Citrus aurantium saponacea Safford. (Rutaceae.) 40824. Seeds of the Samoan wild orange from Tutuila, Samoa. Presented by the Governor, through Mr. W. E. Safford, of this Bureau. "Seeds of the wild orange of Samoa, probably *Citrus hystrix* DC. (*Citrus aurantium saponacea* Safford, Contr. U. S. National Herbarium, vol. 9, p. 226, 1905) called *moli* or *moli vao*('forest moli'),or *moli u'u*('annointing moli') by the natives, who use it for washing. On account of its use as a detergent the name *moli* is applied by the Samoans to soaps of all kinds. The *moli vao* is a thorny tree growing spontaneously in the forests of Samoa, where it was undoubtedly established in prehistoric times. It also occurs in Fiji, and bears the same common name there. The glossy dark-green leaves have a crenate margin and a very broadly winged petiole, sometimes almost as large as the leaf itself. The flowers occur in axillary or terminal clusters. The smooth spheroid fruit when ripe is usually greenish-yellow or lemon colored. The pulp is pleasantly aromatic but not edible. It leaves a peculiar fragrance in the hair when used as a shampoo, and the natives say that it prevents dandruff and stimulates the growth of the hair. They make an infusion of the scraped bark of the tree as a remedy for pectoral affections and use a hot decoction of the leaves for asthma. This species is introduced as a possible stock for other less robust species of Citrus." (Safford.)

Citrus grandis(L.)Osbeck.(Rutaceae.) 40893. Seeds of a pomelo from Nagasaki, Japan. Collected by Mr. W. T. Swingle, of this Bureau. "I found at Nagasaki Experiment Station a most excellent pomelo, the *Hirado Buntan*, better

than the Hongkong Pumelo, though not seedless. I send seeds from a choice fruit given me at the Experiment Station, May 23. The pith of the fruit is small and solid, the color like a good grapefruit."(W. T. Swingle.)

Clematis stanleyi Hooker.(Ranunculaceae.) 40844. Seeds of a clematis from Johannesburg, Union of South Africa. Presented by Mr. J. Burtt-Davy, Botanist, Agricultural Supply Association. "An erect robust herb, three feet in height with biternate, silky, wedge-shaped leaves and large white to pink-purple flowers, one to three inches across."(Burtt-Davy.)

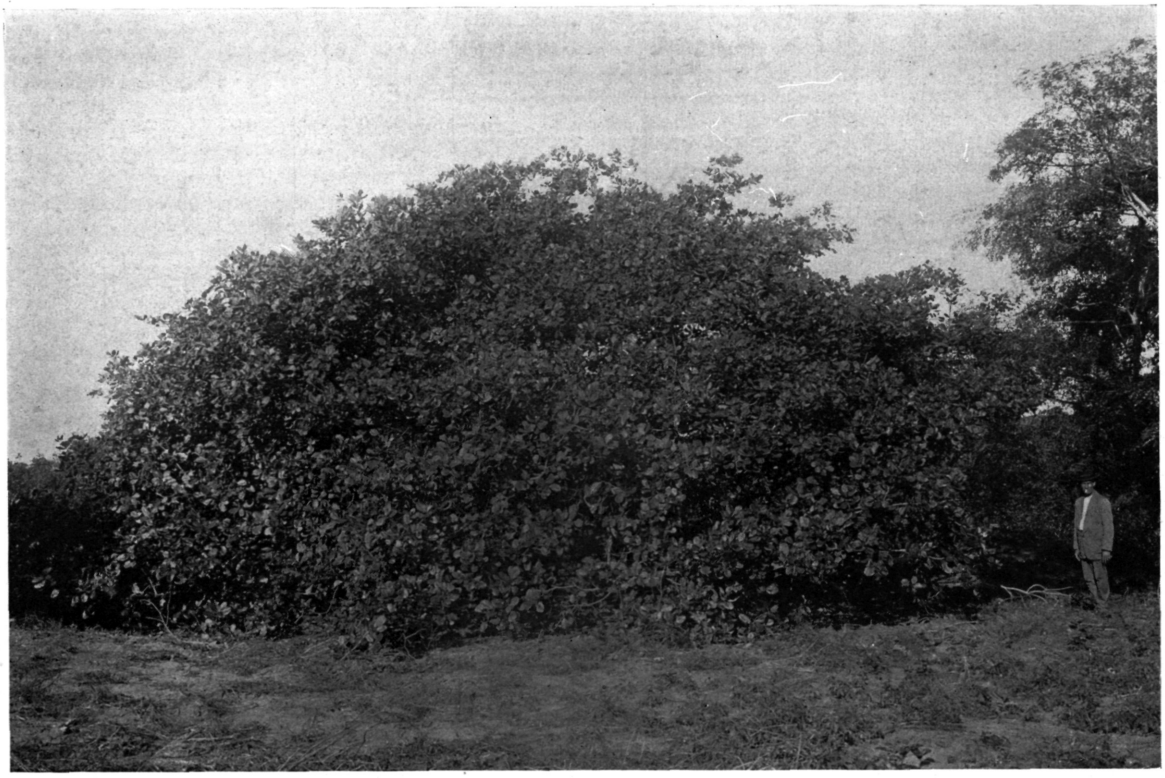
Cracca candida(DC.)Kuntze.(Fabaceae.) 40894. Seeds from Peradeniya, Ceylon. Presented by Mr. H. F. Macmillan, Superintendent, Royal Botanic Gardens. "Well-known in the East as *Boga-medelloa*. This grows rapidly and attains a height of eight to ten feet or more. It is a favorite plant for planting among crops for green maturing, and is probably the best for the purpose in tropical latitudes." (Macmillan.)

Cracca villosa purpurea(L.)Kuntze.(Fabaceae.)40895. Seeds from Peradeniya, Ceylon. Presented by Mr. H. F. Macmillan, Superintendent, Royal Botanic Gardens. "A perennial herb, one or two feet high, with few-flowered racemes of purplish-pink flowers, used in the low country of Ceylon as a green manure, and in the dry regions as a mulch and sand-binder. A decoction of the bitter root is used by the Hindoos for dyspepsia, diarrhoea, and flatulence."(Macmillan, Handbook of Tropical Gardening.)

Dendrocalamus hamiltonii Nees & Arnott.(Poaceae.) 40888. Seeds from Calcutta, India. Presented by Mr. William Bembower, Collins, Ohio. "A common bamboo in the eastern Himalaya from Kumaon to Assam. It is generally a tall grass 40 to 60 feet in height, but sometimes found as a long and tangled bush. The young shoots are used as food, being boiled and eaten in Sikkim, Bhutan and Assam. The halms are large, three to six inches in diameter, rather hollow and not always straight, but they are used for every variety of purpose. This is the common bamboo of the Darjeeling Hills and Terai, of the Dours and the Assam Valley, and is in universal employment for building and basket and mat work, though as a building bamboo its comparative softness and thin walls make it inferior to such species as *Bambos tulda* and *balcooa*. The young shoots are eaten as a vegetable. The inner layer of the culm-sheath

is used for covering Burmese cigarettes. This bamboo flowers usually sporadically, so that clumps in flower may almost always be found; and consequently it has been largely and often collected; at the same time, like other species, it sometimes flowers gregariously as it is doing this year (1894) both in Sikkim and in Dehra Dun. Of its straggling habit, so noticeable in the forests of Bengal and Burma, but curiously much less so in the Dun, J. W. Oliver remarks, 'When they have no trees to support them, the main stems bend over, forming impenetrable thickets, and the lateral branches ascend vertically often forming shoots nearly as long as the main stems.' This species is very easily identified by its panicle of bright purple-red flowers, and when out of flower the grey stems, long, nearly glabrous stem sheaths and straggling habit cause it to be easily recognized. The long hairy points to the anthers are also remarkable."(J. S. Gamble, Bambuseae of British India, Annals of the Calcutta Botanic Gardens, vol. 7, p. 85.)

Dendrocalamus strictus(Roxb.)Nees.(Poaceae.)40889. Seeds of a bamboo from Calcutta, India. Presented by Mr. William Bembower, Collins, Ohio. "A very useful and strong bamboo of India, formerly used universally for spear shafts. The plant flowers frequently and does not die down after flowering as is the case with so many bamboos. The culms are said sometimes to reach a height of 100 feet. This is the most common and most widely spread and most universally used of the Indian bamboos, and is commonly known as the 'male bamboo.' Its culms are employed by the natives for all purposes of building and furniture, for mats, baskets, sticks and other purposes. It furnishes, when solid culms are procurable, the best material for lance shafts. In Burma, when large culms are obtainable, they are much in request for mats for native boats. It flowers gregariously over large areas, as it did in the Central Provinces in 1865, but it may be found flowering sporadically, a few clumps at a time, almost every year, in any locality, and such clumps then usually die off. These flowerings however, do not produce as much good seed as when the gregarious flowering takes place. The flowers appear in the cold season between November and April, the seed ripening in June. The leaves fall in February or March, and the young new ones appear in April. The young culms are rather late, usually beginning to appear in July sometime after the rains begin."(J. S. Gamble, Bambuseae of British India, Annals of the Calcutta Botanic Gardens, vol. 7, p. 79.)



A CASHEW TREE IN AN ORANGE ORCHARD IN BAHIA, BRAZIL.

Although the Cashew (*Anacardium occidentale*) has grown and fruited in Florida, the attention of horticulturists has not been forcibly attracted to it. In Southern Brazil it appears as an important market fruit and on the island of Itaparica a strain occurs which is especially famed for its large excellent fruit. The mild acid fruit is eaten fresh or made into wine, jams or jellies. The hard kidney-shaped nut borne upon the blossom end of the fleshy pear-shaped receptacle (the cashew apple) contains a rich highly flavored kernel, which if served hot is one of the most delicate nuts known. These are the cashew nuts of commerce. The hard shell which surrounds the nut, has inside a layer containing a most acrid corrosive oil which attacks the skin more actively than does poison ivy. This oil can be easily driven off by heat but the fumes are extremely acrid. Photo No. 14468 by Dorsett, Shamel and Popenoe, Dec. 9, 1913, in Bahia, Brazil.

A FIELD OF GINGER IN SHANTUNG PROVINCE, CHINA.

The consumption of Chinese Ginger (*Zinziber officinalis*) in America, although it might still be ranked as a delicacy, amounts to half a million pounds yearly. Its preparation as preserved, dried or candied ginger is so simple that any housewife could learn how to do it and since the underground rhizomes will stand quite low temperatures it should be worth while to distribute it throughout the South and Southwest for dooryard garden cultivation either with or without irrigation. The Chinese use it fresh as well as preserved. Photo by F. N. Meyer, No. 5342, taken Sept. 8, 1907, at North Ninyang, Shantung, China.

Dioscorea fasciculata Roxb.(Dioscoreaceae.) 40892. Tubers of a yam from Manila. Presented by Mr. H. T. Edwards, Director, Bureau of Agriculture. "*Tugue*. Flesh white, and mealy but firm and a little fibrous, sweetish. The quality is not equal to that of the *yampi* of Jamaica." (R. A. Young.)

Durio zibethinus Murray.(Malvaceae.) 40826. Seeds from the Botanic Gardens, Buitenzorg, Java. Presented by the Director. "A very large, handsome, pyramid-shaped tree, native of the Malayan Archipelago, and commonly cultivated in the Straits, Burma, Java, etc., for the sake of its celebrated fruit. The latter is produced on the older branches, varies somewhat from round to oval in shape, and usually weighs from five to seven pounds or more. It is armed with thickly set formidable prickles about one-half inch long; when ripe it becomes slightly yellow, and possesses an odour which is intensely offensive to most people, especially on first acquaintance with it. The cream-coloured pulp surrounding the seed is the edible portion; this is most highly prized by the Malays and oriental people, and is also relished by Europeans who acquire a taste for it. Firminger describes it as 'resembling blanc-mange, delicious as the finest cream,' whilst Mr. Russell Wallace considered that 'eating durians is a sensation worth a voyage to the East.' The large seeds may be roasted and eaten like chestnuts. Pounded into flour, they are said to be sometimes made into a substance like 'vegetable-ivory.' The durian tree thrives in the moist low-country of Ceylon up to 2000 feet elevation, and luxuriates in deep alluvial or loamy soil. In Peradeniya Gardens, there are magnificent specimens well over 100 feet in height. They usually flower in March or April, and the fruit is ripe in July or August. Durian fruits are variable in size, shape, flavour and quantity of pulp, according to variety. The trees also vary in productiveness, some varieties being almost barren. Selection and high cultivation should therefore be practised in order to obtain the best fruits. The tree is readily propagated by seed if sown fresh; the seed is of short vitality and germinates in seven to eight days."(Macmillan, Handbook of Tropical Gardening and Planting.)

Passiflora alata Curtis.(Passifloraceae.) 40843. Seeds of a passion-fruit from Honolulu, Hawaii. Presented by Mr. Garret P. Wilder. "This is a strong vigorous vine, very suitable for arbors and trellises. It is not commonly found in Hawaii; however, a very fine specimen of its

kind is growing in Dr. St. D. G. Walter's garden in Honolulu. The leaves are oval to ovate, the petioles having two glands. The fragrant purple flowers are about two inches in diameter. The ovoid-pointed fruit has a tough, leathery shell which, when green is six-striated, with white stripes; when quite ripe the fruit is a dull orange-yellow. The numerous seeds are imbedded in the juicy, scented pulp, which is aromatic and delicious. Propagation is by seed and by cuttings." (G. P. Wilder, Fruits of the Hawaiian Islands.)

Passiflora edulis Sims.(Passifloraceae.) 40852. Seeds of a passion-fruit from Guemes, Argentina. Presented by Mr. H. F. Schultz, Director, Agricultural Experiment Station. "At Jujuy I found another variety of edible Passiflora which, I think, is superior to the variety I mailed you before. The fruit is roundish, smooth and of a very attractive yellow color, of a rather pale shade and not unlike a *Yellow Richard* apple. The fruit measures about 7 to 8 cm. in diameter. The pulp is bluish purple in color, and, in my opinion, is more spicy than the other variety. The plant is very precocious and a good, strong grower, for which reason it should be planted about 8 meters one from the other and be trained on four or five wires, a foot apart, each, the upper one about 1.80 meters high. I do not know where the variety originally came from; a friend of the proprietor purchased some fruits in Covent Garden, London, and brought him the seeds. The price for the fruit there, at that time was two pence each, while the fruits of the Queensland variety sold at three pence each."(Schultz.)

Passiflora laurifolia L.(Passifloraceae.) 40837. Seeds of a passion-fruit from Honolulu, Hawaii. Presented by Mr. Garret P. Wilder. "This strong-growing, glabrous vine, climbing by tendrils, is a native of tropical America and known there as the *Yellow waterlemon*. The date when it was introduced to Hawaii, and by whom, is not known, but in the Hilo and Hamakua districts of Hawaii this variety grows wild. Its thick leaves are oval, oblong and entire, and have a short, sharp point. The flowers are about two and a half inches across, are white, with red spots on them. The fruit is slightly oblong, 2 inches in diameter, and very regular in size and shape. When ripe, it is yellow, spotted with white. It has a medium-hard shell or skin, and the edible pulp is whitish-yellow, and contains many flat, black seeds."(G. P. Wilder, Fruits of the Hawaiian Islands.)

Phyllostachys sp.(Poaceae.) 40842, 40851. Plants of a bamboo from Burroughs, Ga. Secured through Mr. S. B. Dayton, by Mr. Edward Simmonds, of this Office. A bamboo, reported to have been brought from India about 1890 by the late Andres E. Moynelo, but from all appearances, a Japanese species, probably *P. bambusoides*. This bamboo was first called to the attention of the office by Mr. Dayton in April of this year when he sent us a large shoot, such as he had been retailing to a Savannah restaurant at twenty-five cents. On examination the plantation was found to consist of good-sized old canes, attaining a height of perhaps 60 feet, and showing its perfect adaptability to the climate of Savannah. The canes on test have shown themselves for certain industrial purposes equal to the imported Japanese forms of *madake*, *P. bambusoides*. (S. C. Stuntz.)

Primula littoniana G.Forrest.(Primulaceae.) 40857. Seeds of Litton's primrose from Talifu, Yunnan, China. Purchased from Dr. C. C. Schneider, Arnold Arboretum. "*P. littoniana*, though by no means the most beautiful of the new hardy Chinese primulas, has an altogether unique character that is bound to carry it into a permanent place in the heart of the primrose lover. The small lilac blossoms, as well as the lilac leaves, are somewhat like those of *P. denticulata*, but here resemblance ceases. Instead of the usual primula umbel, the scape terminates in a long flower spike, set thickly with bloom. The calyces are a rich maroon and the remarkable effect comes when these form a point above a sort of ruff of the lilac blossoms. Small wonder that it fairly dazzled George Forrest, the collector, when he found it massed naturally in the high mountains of China. There the flower stalks sometimes rise to a height of two and a half feet." (H. S. Adams, Garden Magazine, May 1914.)

Pyrus sp.(Malaceae.) 40865-871. Seeds of pears from Talifu, Yunnan, China. Purchased from Dr. C. C. Schneider, Arnold Arboretum. All from cultivated fruits from the Talifu market, of varying sizes and shapes. No information as to quality.

Ziziphus jujuba Miller.(Rhamnaceae.) 40877-878. Jujube fruits from Pinchow, Shensi, and Lingpau, Honan, China. 40877, "A very good quality of jujube, having large and heavy fruits of elongated shape; considered to be the second best in China, the *Ta yuan tsao* of Pai hsiang chen, Shansi, coming first. Chinese name *Chin tsao* and *Fei tsao*, meaning 'Golden jujube' and 'Fat jujube.'" 40878, "A medium

large variety of jujube, of round-flattened shape and of brown-red color. Meat sweet but of loose texture; much used baked in bread and boiled with millet. Chinese name *Ta hong tsao*, meaning 'large red jujube.'"(Frank N. Meyer's introductions and descriptions.)

Ziziphus mistol Griseb.(Rhamnaceae.) 40853. Seeds of the mistol from Guemes, Argentina. Presented by Mr. H. F. Schultz, Director, Agricultural Experiment Station. "A small tree with spiny tortuous branches, subrotund, coriaceous, minutely serrulate leaves, inconspicuous flowers, and small edible drupes with large stones. Introduced as a possible stock for the Chinese jujube, and for comparison with the Brazilian *Jua* (*Ziziphus joazeiro*). Found throughout northern Argentina as far south as the Province of Cordoba."(Schultz.)

NOTES FROM CORRESPONDENTS ABROAD.

Yokohama, Japan, Miss Eliza R. Scidmore writes August 10, 1915. "The nursery man went up in the air when I suggested getting slips from the plum tree by the Forty-seven Ronin's grave. Impossible!! That tree too sacred to let anyone have a hack at it.

"The Giou cherry tree in Kioto quite possible he thinks.

"Many cherry trees at the Arakawa bank are dead and dying. Floods or popularity, the jarring of millions of feet have paralyzed the roots.

"The dog days began a week after I landed, and the rice crop ought to be a tremenduous one.

"The most beautiful sight in Japan is now Mr. Hara's garden at San-no-taui, beyond the Honmokee bathing beach. A narrow valley with a carriage road crossing and then following lotus, lotus, lotus! Pink and white, very tall, in full flower, beautifully kept. Like the iris gardens, only the iris has not those beautiful big leaves flopping up and down. I never imagined anything so lovely.

"I ran down the morning glory industry for you last week--spent a mosquito night at the hotel in Nyeno park, and at 5 a.m. motored out beyond Kameido, where the Iriya gardeners were driven by the floods six years ago. They still grow them--acres of pots--but send them into the city for sale. There are no show gardens and places to sit and look at benches, etc., full of rare ones. All that is over. Too far out now for people to go at sunrise and wander from garden to garden as at Iriya.

"You would think yourself in Berlin now to ride into the heart of Tokyo on elevated tracks and descend by cement staircases and tiled tunnels to the great domed *bahnhof*. I liked it better the old way."

Mokanshan, Chekiang Province, China, Mr. Frank N. Meyer writes Aug. 5, 1915. "Concerning this bamboo, *Phyllostachys pubescens*, I can say this: The 'Mao tsoh' delights in sheltered situations on mountain and hill-slopes; it wants a rich, porous clayey soil to reach greatest perfection. In this latitude, 31°, it seems to thrive best at elevations between 1000 and 2000 feet above sea-level. The height of canes varies from about 20 feet, on poor, exposed places, to about 80 feet in rich, moist gullies, in diameter of stem from 2 inches to 5 inches, and in circumference of stem from 6 inches to 16 inches. The canes sell locally at 4 cash per catty (=about $\frac{1}{4}$ of an American cent for $1\frac{1}{2}$ lb.). A cane often weighs up to 80 catties but the average is probably about 30 catties. At Dongsi, Mr. Kennedy informed me, they receive about 20 Chinese copper cents for a cane of about 40 ft. long; (which is about 8 cents U. S. gold, but the rate of exchange influences prices considerably, when American currency is used). As regards cutting of this bamboo, the best time is from the end of October until the beginning of February. Concerning periodical cutting, the following advices were obtained. Do *not* cut canes less than two seasons old, as it weakens the plants very much and the canes themselves do not last long, being not fully mature. Do not allow canes to stay on the ground for longer than 7 years, as the wood becomes too hard and too brittle to handle, except for exceptional purposes. The ideal is to cut in a bamboo grove every two years all of the canes that are three years old and over, but should the grove not be very vigorous, be careful in not removing too many canes and especially no young ones. Canes of one season's growth should, at the approach of winter, have their tops cut out, so as to minimize the danger of such canes being broken by the snows and the storms of the cold season; these tops are in general 5-10 feet long, depending upon the length of the cane; they are used, when cut up and arranged suitably, as brooms and they are very lasting, cheap and efficient and of special value in farm-yards, in sweeping grains and seeds together on threshing floors. When transplanting this bamboo or when starting a new grove, the aim should be to obtain young, strong rhizomes of considerable length, with as many roots attached as possible, and to transplant them from the middle of February until the end of March; leave no large piece of cane

attached to the rhizome. (This is Chinese advice of course, because the Chinese here do not know the success one can obtain with bamboos, when growing them with confined roots!) As regards the monetary returns per acre per year, this we find a very hard matter to get cleared up. One fellow said that a neighbor of his had sixty mow of land, (about 10 acres) with *Mao tsoh* and after having let them grow for four years, he received last winter $200 Mex. for the lot, that is, for every cane that was two years old. He had to pay, however, 10% taxes, so he got $180.00 Mex. clear money; which is $18.00 Mex. per acre for 4 years, or $4.50 Mex. per acre per year. And his bamboos were very fine indeed, added our informant. This is certainly a small return for a crop, according to an American point of view, but then - these bamboos grow on mountain slopes where it is very hard to grow other crops, with the exception of tea, and they need very little looking after, while the cut-off tops and the culm sheaths (for packing) bring in an additional small income.

"Here are a few fundamentals of working bamboos: never split canes which are perfectly dried out, always have your canes as moist as possible. Straighten your canes by means of a hot flame and bend gently, while applying hot pieces of cloth to the stems. When wanting curves and abrupt bends, saw out a piece and bend above a hot flame. Employ sharp instruments of hard steel. Split bamboos from top to bottom.

"When wanting the partitions of a large cane pierced through, so as to use it for a water pipe, take a thin, hard cane and ram it through.

"If building long irrigation pipes, fit the top end of one cane into the base end of the other, and take fiber with clay to make the joints tight; they do not stand a great pressure, however. Later on, when having seen more, I may be able to say more but now I think I am safe in saying this:

"Bamboo culture in the Gulf sections of our Southern States and in parts of the Pacific Coast States will become successful within the next few generations. It probably will prove to be quite remunerative when taken up by industrial schools and as a home industry. One of the quickest ways to make bamboo culture popular, would be by having a travelling exhibit of bamboo ware and photos, etc., and showing such things to people in those sections of the U. S. where bamboo groves could be established."

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Date of Issue: Sept. 28, 1915.